

Risk Assessment

How to do a risk assessment for your operations

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- A ship owner should make an attempt to consider and deal with every reasonable risk associated with the ship.
- What stops this from being a never-ending list is to apply the likelihood versus consequence process — so that you are only dealing with the risks that warrant attention.

Steps for completing a risk analysis — 1

1. Sit down with your crew and work out the risks associated with your operation – **what could hurt us/what could we get hurt doing?**
2. Write all of these down on the left-hand side of the risk register form for your ship.

Steps for completing a risk analysis — 2

Work out how serious each of those risks are

- **How likely is it to happen?** (likelihood table)
- **How bad could it be?** (consequence table)

Use the likelihood versus consequence tables on the next slide to determine a level for each risk.

Do this with your crew.

Likelihood table

Almost certain	Expected to occur in most circumstances or often in the life of a vessel.
Likely	Probably occur in most circumstances but unlikely to occur often in the life of a vessel.
Possible	Might occur at some time, unlikely to occur to every vessel but may occur to a few vessels of a type.
Unlikely	Unlikely to occur but should be considered as possible.
Rare	So extremely remote that it should not be considered as possible except in exceptional circumstances.

Consequence Table

Category	Human injury	Financial cost	Work/Income/ Reputation	Environment
Catastrophe	Multiple fatalities	Loss of vessel	Operations halted	Extensive environmental damage
Major	Fatality	Extensive financial loss	Major disruption to operations	Major environmental damage
Moderate	Disabling injury requires medical treatment	Significant financial loss — rescue of vessel required	Significant production/ achievement disruption	Significant environmental damage
Minor	First aid treatment — minor cuts, bruises or bumps	Notable financial loss	Slight production/ achievement disruption	Minor environmental damage
Insignificant	No injuries	Negligible financial loss	No effect on work	Negligible environmental damage

Steps for completing a risk analysis — 3

- Join the likelihood and consequence levels for each risk on the table below to get an overall risk level.
- Write the risk level in the next column in the risk register.
- Order the risks from most extreme to negligible.

	Damage				
Chance	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	High /tolerable	High /borderline tolerable	Extreme /intolerable	Extreme /intolerable	Extreme /intolerable
Likely	Moderate /tolerable	High /tolerable	High /borderline tolerable	Extreme /intolerable	Extreme /intolerable
Possible	Low /negligible	Moderate /Tolerable	High /tolerable	Extreme /intolerable	Extreme /intolerable
Unlikely	Low /negligible	Low / negligible	Moderate /tolerable	High /tolerable	Extreme /intolerable
Rare	Low /negligible	Low / negligible	Moderate /tolerable	High /tolerable	High /borderline tolerable

Steps for completing a risk analysis — 4

- Find ways to reduce the risk for all extreme and high level risks — intolerable and borderline tolerable.
- Check the rest of the risks to see if there are things a ‘reasonable person’ would expect should be done to reduce the tolerable and negligible risks.

Steps for completing a risk analysis — 5

- When thinking about how to reduce a risk, think about more than just making a ‘safety procedure’.

(More details on this are found in the Reference Manual – Chapter 9.)

Consider ways to reduce the risk by:

- eliminating it completely
- substituting less risky materials/equipment and so on
- redesigning structures
- isolating persons from the risk
- administrative controls — new or improved policies and procedures
- personal protective equipment (PPE).

Steps for completing a risk analysis — 6

- Make the changes in your Safety Management System (SMS) to reflect your risk reduction solution.
- Fill in the last column of the risk register to show what you changed to reduce the risk.
- Check the likelihood and consequence level again with the new solution in mind to see if the risk is reduced – Remaining column on the risk register.